

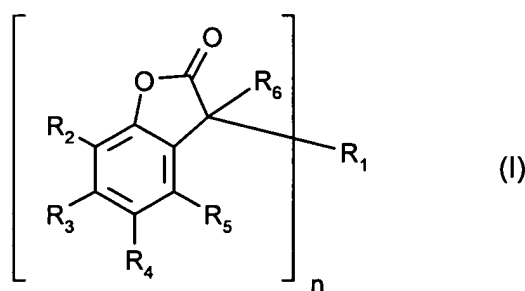
1. (currently amended): A heat-curable powder coating composition comprising

a) ~~an organic film-forming binder~~ epoxy resin, a polyester-hydroxyalkylamide, a polyester-glycoluril, an epoxy-polyester resin, a polyester-triglycidyl isocyanurate, a hydroxy-functional polyester-blocked polyisocyanate, a hydroxy-functional polyester-uretdione, an acrylate resin with hardener or a mixture of such resins

and

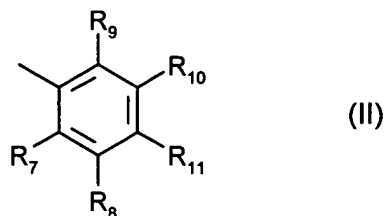
b) as stabilizer at least one compound of the benzofuran-2-one type,
which composition in the course of curing is in contact with nitrogen oxides originating from combustion gases.

2. (currently amended): A heat-curable powder coating composition according to claim 1, in which component (b) is a compound of the formula I



in which, if n is 1,

R₁ is unsubstituted or C₁-C₄alkyl-, C₁-C₄alkoxy-, C₁-C₄alkylthio-, hydroxyl-, halogen-, amino-, C₁-C₄alkylamino-, phenylamino- or di(C₁-C₄alkyl)amino-substituted naphthyl, phenanthryl, anthryl, 5,6,7,8-tetrahydro-2-naphthyl, 5,6,7,8-tetrahydro-1-naphthyl, thienyl, benzo[b]thienyl, naphtho[2,3-b]thienyl, thianthrenyl, dibenzofuryl, chromenyl, xanthenyl, phenoxathiinyl, pyrrolyl, imidazolyl, pyrazolyl, pyrazinyl, pyrimidinyl, pyridazinyl, indoliziny, isoindolyl, indolyl, indazolyl, purinyl, quinoliziny, isoquinolyl, quinolyl, phthalazinyl, naphthyridinyl, quinoxaliny, quinazoliny, cinnoliny, pteridinyl, carbazolyl, β-carboliny, phenanthridinyl, acridinyl, perimidiny, phenanthroliny, phenazinyl, isothiazolyl, phenothiazinyl, isoxazolyl, furazanyl, biphenyl, terphenyl, fluorenyl or phenoxazinyl, or R₁ is a radical of the formula II



and,

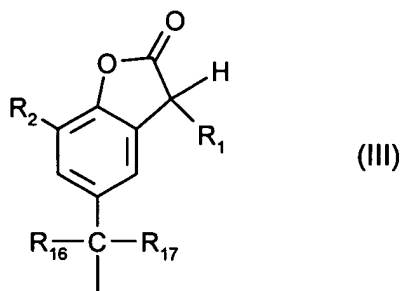
if n is 2,

R₁ is unsubstituted or C₁-C₄alkyl- or hydroxyl-substituted phenylene or naphthylene; or is -R₁₂-X-R₁₃-,

R₂, R₃, R₄ and R₅ independently of one another are hydrogen, chlorine, hydroxyl, C₁-C₂₅-alkyl, C₇-C₉phenylalkyl, unsubstituted or C₁-C₄alkyl-substituted phenyl; unsubstituted or C₁-C₄alkyl-substituted C₅-C₈cycloalkyl; C₁-C₁₈alkoxy, C₁-C₁₈alkylthio, C₁-C₄alkylamino, di(C₁-C₄-alkyl)amino, C₁-C₂₅alkanoyloxy, C₁-C₂₅alkanoylamino, C₃-C₂₅alkenoyloxy, C₃-C₂₅-alkanoyloxy

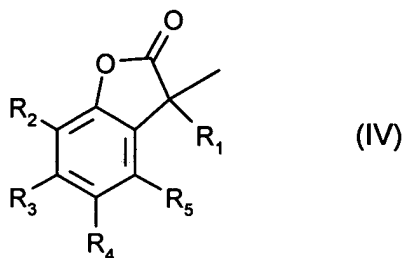
interrupted by oxygen, sulfur or >N-R_{14} ; C₆-C₉cycloalkylcarbonyloxy, benzoyloxy or C₁-C₁₂alkyl-

substituted benzoyloxy; or else the radicals R₂ and R₃ or the radicals R₃ and R₄ or the radicals R₄ and R₅ , together with the carbon atoms to which they are attached, form a benzo ring, R₄ is additionally -(CH₂)_p-COR₁₅ or -(CH₂)_qOH or, if R₃, R₅ and R₆ are hydrogen, R₄ is additionally a radical of the formula III



in which R₁ is as defined above for n = 1,

R₆ is hydrogen or a radical of the formula IV



where R_4 is not a radical of the formula III and R_1 is as defined above for $n = 1$,

R_7 , R_8 , R_9 , R_{10} and R_{11} independently of one another are hydrogen, halogen, hydroxyl, C_1 - C_{25} alkyl, C_2 -

C_{25} alkyl interrupted by oxygen, sulfur or >N-R_{14} ; C_1 - C_{25} alkoxy, C_2 - C_{25} -alkoxy interrupted by

oxygen, sulfur or >N-R_{14} ; C_1 - C_{25} alkylthio, C_3 - C_{25} alkenyl, C_3 - C_{25} -alkenyloxy, C_3 - C_{25} alkynyl,

C_3 - C_{25} alkynyloxy, C_7 - C_9 phenylalkyl, C_7 - C_9 phenylalkoxy, unsubstituted or C_1 - C_4 alkyl-substituted phenyl; unsubstituted or C_1 - C_4 alkyl-substituted phenoxy; unsubstituted or C_1 - C_4 alkyl-substituted

C_5 - C_8 cycloalkyl; unsubstituted or C_1 - C_4 -alkyl-substituted C_5 - C_8 cycloalkoxy; C_1 - C_4 alkylamino,

di(C_1 - C_4 alkyl)amino, C_1 - C_{25} alkanoyl, C_3 - C_{25} alkanoyl interrupted by oxygen, sulfur or >N-R_{14} ;

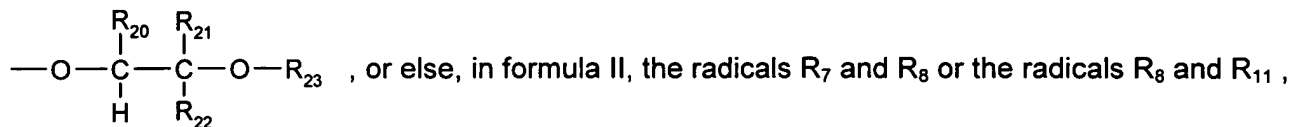
C_1 - C_{25} alkanoyloxy, C_3 - C_{25} -alkanoyloxy interrupted by oxygen, sulfur or >N-R_{14} ;

C_1 - C_{25} alkanoylamino, C_3 - C_{25} -alkenoyl, C_3 - C_{25} alkenoyl interrupted by oxygen, sulfur or >N-R_{14} ;

C_3 - C_{25} alkenoyloxy, C_3 - C_{25} alkenoyloxy interrupted by oxygen, sulfur or >N-R_{14} ;

C_6 - C_9 cycloalkylcarbonyl, C_6 - C_9 cycloalkylcarbonyloxy, benzoyl or C_1 - C_{12} alkyl-substituted benzoyl;

benzoyloxy or C_1 - C_{12} alkyl-substituted benzoyloxy; $\text{—O—}\overset{\overset{R_{18}}{|}}{\underset{\underset{R_{19}}{|}}{C}}\text{—}\overset{\overset{O}{||}}{C}\text{—}R_{15}$ or



together with the carbon atoms to which they are attached, form a benzo ring,

R₁₂ and R₁₃ independently of one another are unsubstituted or C₁-C₄alkyl-substituted phenylene or naphthylene,

R₁₄ is hydrogen or C₁-C₈alkyl,

R₁₅ is hydroxyl, $\left[\text{—O}^- \frac{1}{r} \text{M}^{r+} \right]$, C₁-C₁₈alkoxy or $\text{—N} \begin{matrix} \text{R}_{24} \\ \text{R}_{25} \end{matrix}$,

R₁₆ and R₁₇ independently of one another are hydrogen, CF₃, C₁-C₁₂alkyl or phenyl, or R₁₆ and R₁₇, together with the C atom to which they are attached, form an unsubstituted or mono- to tri-C₁-C₄alkyl-substituted C₅-C₈cycloalkylidene ring;

R₁₈ and R₁₉ independently of one another are hydrogen, C₁-C₄alkyl or phenyl,

R₂₀ is hydrogen or C₁-C₄alkyl,

R₂₁ is hydrogen, unsubstituted or C₁-C₄alkyl-substituted phenyl; C₁-C₂₅alkyl, C₂-C₂₅alkyl interrupted by oxygen, sulfur or >N—R_{14} ; C₇-C₉phenylalkyl which is unsubstituted or substituted on the phenyl

radical 1 to 3 times by C₁-C₄alkyl; C₇-C₂₅phenylalkyl which is interrupted by oxygen, sulfur or

>N—R_{14} and which is unsubstituted or substituted on the phenyl radical 1 to 3 times by

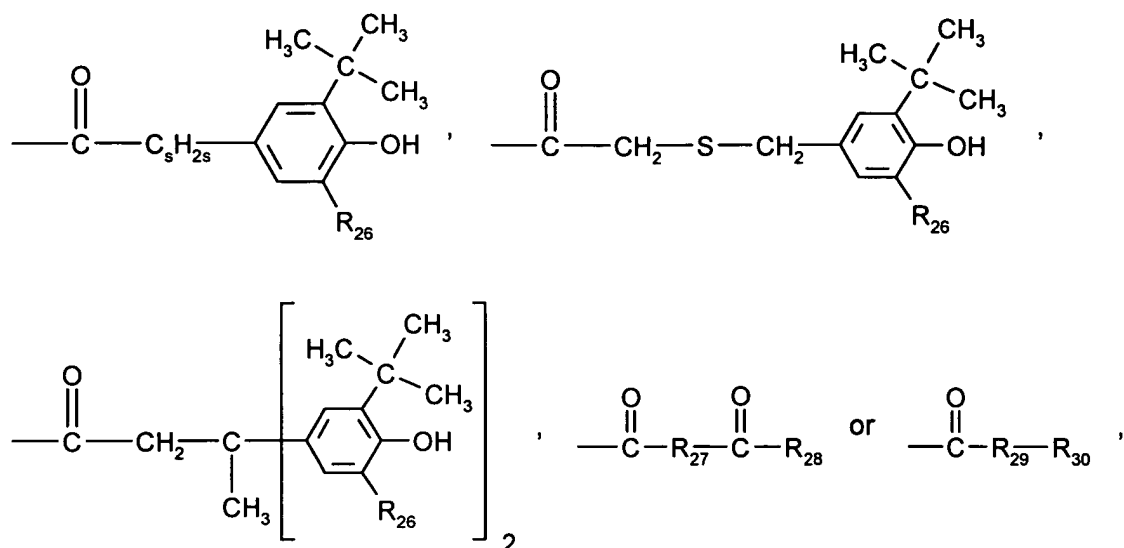
C₁-C₄alkyl, or else the radicals R₂₀ and R₂₁, together with the carbon atoms to which they are attached, form an unsubstituted or mono- to tri-C₁-C₄alkyl-substituted C₅-C₁₂cycloalkylene ring;

R₂₂ is hydrogen or C₁-C₄alkyl,

R₂₃ is hydrogen, C₁-C₂₅alkanoyl, C₃-C₂₅alkenoyl, C₃-C₂₅alkanoyl interrupted by oxygen, sulfur or

>N—R_{14} ; C₂-C₂₅alkanoyl substituted by a di(C₁-C₆alkyl)phosphonate group;

C₆-C₉cycloalkylcarbonyl, thenoyl, furoyl, benzoyl or C₁-C₁₂alkyl-substituted benzoyl;



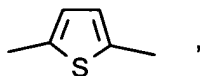
R₂₄ and R₂₅ independently of one another are hydrogen or C₁-C₁₈alkyl,

R₂₆ is hydrogen or C₁-C₈alkyl,

R₂₇ is a direct bond, C₁-C₁₈alkylene, C₂-C₁₈alkylene interrupted by oxygen, sulfur or $\text{N}(\text{R}_{14})$;

C₂-C₁₈alkenylene, C₂-C₂₀alkylidene, C₇-C₂₀phenylalkylidene, C₅-C₈-cycloalkylene,

C₇-C₈bicycloalkylene, unsubstituted or C₁-C₄alkyl-substituted phenylene,  or



R₂₈ is hydroxyl, $\left[\text{---O}^- \frac{1}{r} \text{M}^{r+} \right]$, C₁-C₁₈alkoxy or $\text{---N}(\text{R}_{24})(\text{R}_{25})$,

R₂₉ is oxygen, -NH- or $\text{---N}(\text{C(=O)NH-R}_{30})$,

R₃₀ is C₁-C₁₈alkyl or phenyl,

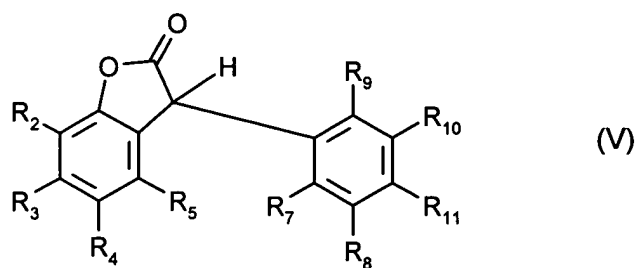
R₃₁ is hydrogen or C₁-C₁₈alkyl,

M is an r-valent metal cation,

X is a direct bond, oxygen, sulfur or -NR₃₁-,

n is 1 or 2,
 p is 0, 1 or 2,
 q is 1, 2, 3, 4, 5 or 6,
 r is 1, 2 or 3, and
 s is 0, 1 or 2.

3. (currently amended): A heat-curable powder coating composition according to claim 1, in which component (b) is a compound of the formula V

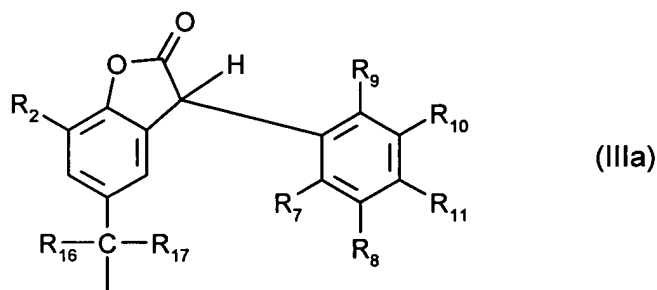


in which

R₂ is hydrogen or C₁-C₆alkyl,

R₃ is hydrogen,

R₄ is hydrogen, C₁-C₆alkyl or a radical of the formula IIIa



R₅ is hydrogen,

R₇, R₈, R₉ and R₁₀ independently of one another are hydrogen, C₁-C₄alkyl or C₁-C₄alkoxy,

R₁₁ is hydrogen, C₁-C₄alkyl or C₁-C₄alkoxy, C₂-C₈alkanoyloxy or $\begin{array}{c} \text{R}_{20} \quad \text{R}_{21} \\ | \quad | \\ -\text{O}-\text{C}-\text{C}-\text{O}-\text{R}_{23} \\ | \quad | \\ \text{H} \quad \text{R}_{22} \end{array}$, with the

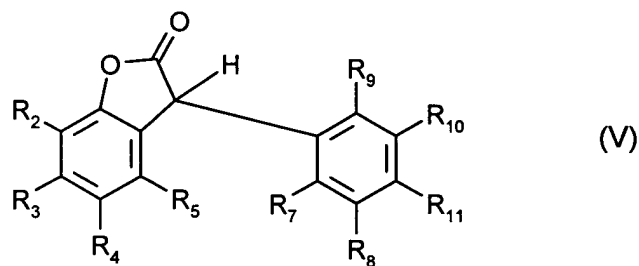
proviso that at least two of the radicals R₇, R₈, R₉, R₁₀ and R₁₁ are hydrogen;

R₁₆ and R₁₇, together with the C atom to which they are attached, form an unsubstituted or mono- to tri-C₁-C₄alkyl-substituted cyclohexylidene ring,

R₂₀, R₂₁ and R₂₂ are hydrogen, and

R₂₃ is C₂-C₁₈alkanoyl.

4. (currently amended): A heat-curable powder coating composition according to claim 1, in which component (b) is a compound of the formula V

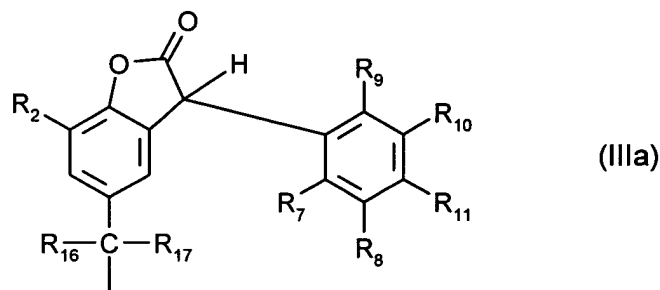


in which

R₂ is tert-butyl,

R₃ is hydrogen,

R₄ tert-butyl or a radical of the formula IIIa



R₅ is hydrogen,

R₇, R₈, R₉ and R₁₀ independently of one another are hydrogen, C₁-C₄alkyl or C₁-C₄alkoxy,

R₁₁ is hydrogen, C₁-C₄alkyl or C₁-C₄alkoxy, C₂-C₈alkanoyloxy or
$$\begin{array}{c} \text{R}_{20} \quad \text{R}_{21} \\ | \quad | \\ -\text{O}-\text{C}-\text{C}-\text{O}-\text{R}_{23} \\ | \quad | \\ \text{H} \quad \text{R}_{22} \end{array}$$
, with the

proviso that at least two of the radicals R₇, R₈, R₉, R₁₀ and R₁₁ are hydrogen;

R₁₆ and R₁₇, together with the C atom to which they are attached, form a cyclohexylidene ring,

R₂₀, R₂₁ and R₂₂ are hydrogen, and

R₂₃ is C₂-C₁₈alkanoyl.

5. (cancelled).

6. (currently amended): A heat-curable powder coating composition according to claim 1, comprising further additives in addition to components (a) and (b).

7. (currently amended): A heat-curable powder coating composition according to claim 6, comprising as further additives, in addition, one or more components from the group consisting of pigments, dyes, fillers, levelling assistants, devolatilizing agents, charge control agents, optical brighteners, adhesion promoters, antioxidants, light stabilizers, curing catalysts, photoinitiators, wetting auxiliaries or corrosion protection agents.

8. (currently amended): A heat-curable powder coating composition according to claim 6, comprising as further additives phenolic antioxidants, sterically hindered amines, organic phosphites or phosphonites; and/or thiosynergists.

9. (currently amended): A heat-curable powder coating composition according to claim 1, in which component (b) is present in an amount of from 0.001 to 10% based on the weight of component (a).

10. (cancelled).

11. A process for reducing the discoloration of heat-curable powder coating compositions which comprises an epoxy resin, a polyester-hydroxyalkylamide, a polyester-glycoluril, an epoxy-polyester resin, a polyester-triglycidyl isocyanurate, a hydroxy-functional polyester-blocked polyisocyanate, a hydroxy-functional polyester-uretdione, an acrylate resin with hardener or a mixture of such resins,

~~which comprises~~comprising

incorporating into or applying to ~~thesesaid~~ compositions before curing at least one component (b)
according to claim 1 compound of the benzofuran-2-one type as stabilizer,

which compositions in the course of curing, are in contact with nitrogen oxides originating from combustion gases.

12. (cancelled).

13. (currently amended): A heat-cured coating film which comprises an epoxy resin, a polyester-hydroxyalkylamide, a polyester-glycoluril, an epoxy-polyester resin, a polyester-triglycidyl isocyanurate, a hydroxy-functional polyester-blocked polyisocyanate, a hydroxy-functional polyester-uretdione, an acrylate resin with hardener or a mixture of such resins,
wherein the cured coating film incorporates at least one compound as stabilizer of the benzofuran-2-one type and in the course of curing, the coating film is in contact with nitrogen oxides originating from combustion gases applied and cured by a process according to claim 11 or 12.

14. (new): A process for reducing the discoloration of heat-curable powder coating compositions according to claim 11 further comprising conducting the curing in a gas oven.

15. (new): A heat-curable powder coating composition according to claim 1, in which component (a) is an epoxy-polyester resin or a hydroxy-functional polyester-uretdione.

16. (new): A heat-curable powder coating composition according to claim 16, in which component (a) is an epoxy-polyester resin.